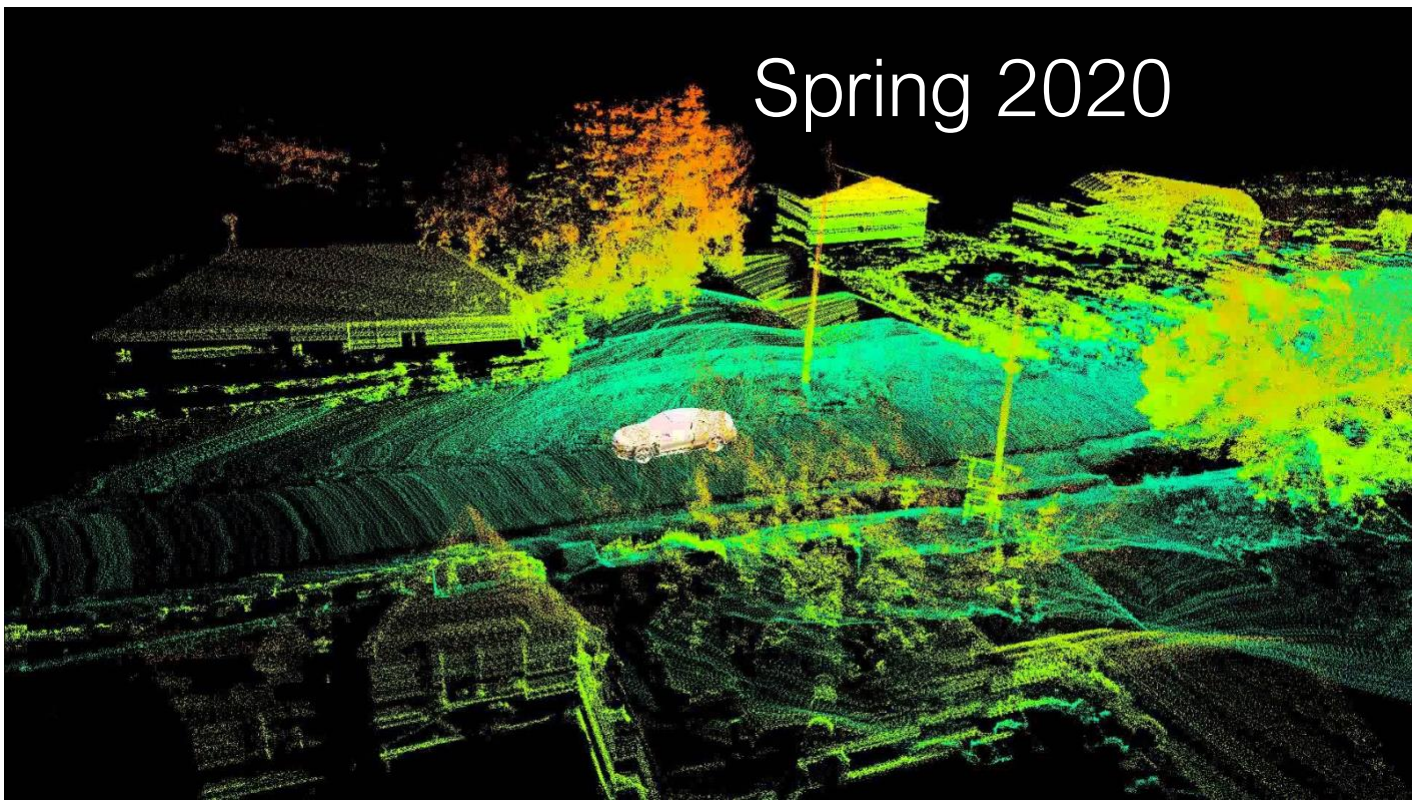


Spring 2020



CMPE 297 – 05: Special Topics in Autonomous Vehicles

Day/Time: Wednesday 6:00pm – 8:45pm

Instructors: Dr. Wencen Wu & Dr. Kaikai Liu

Collaborators: Baidu USA, Ford Greenfield Lab, Velodyne Lidar, ON SEMI, Weride.ai, LGSVL

Description: Introduction to autonomous systems and intelligent solutions for self-driving cars, advanced topics in multi-modal sensing, sensor fusion, AI computing, mapping, deep learning, object detection, perception, localization, prediction, path planning, control, reinforcement learning, and robot operating system (ROS).



Mapping

HD map collection
data processing,
SLAM



Localization

GPS/IMU, Kalman
Multi-sensor fusion
Lidar localization



Perception

Computer Vision
Deep learning
Object detection
Lidar/camera



Control

System modeling,
PID control, LQR,
MPC



Planning

State lattice planner
Reinforcement
learning